CLAIMS

1. A method, comprising:

providing an audio rendition manager having audio data processing components to process audio data, the audio data processing components being instantiated by the audio rendition manager as component objects having one or more interfaces that are callable by an application program;

the audio rendition manager receiving a request from the application program for a programming reference corresponding to an interface of one of the instantiated audio data processing components; and

the audio rendition manager returning the requested programming reference to the application program.

2. A method as recited in claim 1, wherein said returning comprises returning a memory address of a reference to the requested programming reference.

3. A method as recited in claim 1, wherein the audio rendition manager is a component object having one or more interfaces that are callable by the application program, and wherein said receiving comprises the application program calling an interface method of the audio rendition manager.

4. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with the audio rendition manager interface method.

5. A method as recited in claim 1, wherein said providing comprises instantiating the audio rendition manager as an object having one or more interfaces, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with the audio rendition manager interface method.

6. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager and providing one or more interface method search parameters, and wherein the method further comprises determining the requested programming reference with the audio rendition manager interface method in accordance with the one or more interface method search parameters.

7. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with an interface method search parameter that identifies the particular one of the instantiated audio data processing components.

8. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with an interface method search parameter that is a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component.

9. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with an interface method search parameter that is a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component as a component object having one or more audio data modifying components.

10. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with an interface method search parameter that is a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component as an audio sound wave data mixing component.

11. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with interface method search parameters, comprising:

a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component as an audio buffer component that receives audio sound wave data from a plurality of audio buffer components; and

an audio buffer identifier that identifies the audio buffer component.

12. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with interface method search parameters, comprising:

a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component as an audio buffer component;

an audio buffer identifier that identifies the audio buffer component; and

an audio data channel identifier that identifies an audio data channel corresponding to the audio buffer component.

13. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with interface method search parameters, comprising:

a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component as an audio data modifying component;

an audio data channel identifier that identifies an audio data channel corresponding to the audio data modifying component;

a component class identifier that identifies a component class corresponding to the audio data modifying component; and

an index parameter that identifies the audio data modifying component in a group of audio data modifying components that each correspond to the audio data channel and to the audio data modifying component class.

14. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with interface method search parameters, comprising:

a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component as a synthesizer component;

an audio data channel identifier that identifies an audio data channel corresponding to the synthesizer component;

a component class identifier that identifies a component class corresponding to the synthesizer component; and

an index parameter that identifies the synthesizer component in a group of synthesizer components that each correspond to the audio data channel and to the synthesizer component class.

15. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with interface method search parameters, comprising:

a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component as an effects processor component in an audio buffer component that receives audio sound wave data from a plurality of audio buffer components;

an audio buffer identifier that identifies the audio buffer component corresponding to the effects processor component;

a component class identifier that identifies a component class corresponding to the effects processor component; and

an index parameter that identifies the effects processor component in a group of effects processor components that each correspond to the audio buffer component and to the effects processor component class.

16. A method as recited in claim 1, wherein said receiving comprises the application program calling an interface method of the audio rendition manager, and wherein the method further comprises determining the requested programming reference with interface method search parameters, comprising:

a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component as an effects processor component in an audio buffer component;

an audio buffer identifier that identifies the audio buffer component corresponding to the effects processor component;

an audio data channel identifier that identifies an audio data channel corresponding to the effects processor component;

a component class identifier that identifies a component class corresponding to the effects processor component; and

an index parameter that identifies the effects processor component in a group of effects processor components that each correspond to the audio buffer component, to the audio data channel, and to the effects processor component class.

17. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 1.

18. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 4.

19. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 6.

20. A method, comprising:

providing a performance manager as an audio data processing component having an interface that is callable by an application program;

the performance manager instantiating audio data processing components to process audio data, each of the audio data processing components being instantiated as a component object having an interface that is callable by the application program, wherein the audio data processing components include an audio content component that generates the audio data, and an audio rendition manager corresponding to an audio rendition and processing the audio data to render the corresponding audio rendition;

the audio content component receiving a request from the application program for a programming reference corresponding to an interface of one of the audio data processing components; and

the audio content component returning the requested programming reference to the application program.

21. A method as recited in claim 20, wherein said returning comprises returning a memory address of a reference to the requested programming reference.

22. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component.

23. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component, and wherein the method further comprises determining the requested programming reference with the audio content component interface method.

24. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component and providing one or more interface method search parameters, and wherein the method further comprises determining the requested programming reference with the audio content component interface method in accordance with the one or more interface method search parameters.

25. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component, and wherein the method further comprises determining the requested programming reference with an interface method search parameter that identifies the particular one of the audio data processing components.

26. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component, and wherein the method further comprises determining the requested programming reference with an interface method search parameter that is a component identifier of one of the audio data processing components, the search parameter having a value that identifies said component.

27. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component, and wherein the method further comprises determining the requested programming reference with an interface method search parameter that is a component identifier of one of the audio data processing components, the search parameter having a value that identifies the performance manager.

28. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component, and wherein the method further comprises determining the requested programming reference with an interface method search parameter that is a component identifier of one of the audio data processing components, the search parameter having a value that identifies the audio rendition manager.

29. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component, and wherein the method further comprises determining the requested programming reference with an interface method search parameter that is a component identifier of one of the audio data processing components, the search parameter having a value that identifies the audio content component.

30. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component, and wherein the method further comprises determining the requested programming reference with an interface method search parameter that is a component identifier of one of the audio data processing components, the search parameter having a value that identifies said component as an audio data processing component having one or more audio data modifying components.

31. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component, and wherein the method further comprises determining the requested programming reference with interface method search parameters, comprising:

a component identifier of one of the audio data processing components, the search parameter having a value that identifies said component as an audio data modifying component;

an audio data channel identifier that identifies an audio data channel corresponding to the audio data modifying component;

a component class identifier that identifies a component class corresponding to the audio data modifying component; and

an index parameter that identifies the audio data modifying component in a group of audio data modifying components that each correspond to the audio data channel and to the audio data modifying component class.

32. A method as recited in claim 20, wherein said receiving comprises the application program calling an interface method of the audio content component, and wherein the method further comprises determining the requested programming reference with interface method search parameters, comprising:

a component identifier of one of the audio data processing components, the search parameter having a value that identifies said component as an audio data processing component in the audio content component that said generates the audio data;

a component class identifier that identifies a component class corresponding to the audio data processing component in the audio content component; and

an index parameter that identifies the audio data processing component in a group of audio data processing components that each correspond to the component class.

33. A method, comprising:

providing an audio rendition manager having audio data processing components to process audio data;

requesting a reference corresponding to an interface of one of the audio data processing components, the audio rendition manager receiving the request and determining the requested reference; and

receiving the requested reference from the audio rendition manager.

34. A method as recited in claim 33, wherein said receiving the requested reference comprises receiving a memory address of a reference identifier that identifies the requested reference.

35. A method as recited in claim 33, wherein said requesting comprises an application program calling an interface method of the audio rendition manager.

36. A method as recited in claim 33, wherein said requesting comprises an application program calling an interface method of the audio rendition manager, and wherein said determining comprises determining the requested reference with the audio rendition manager interface method.

37. A method as recited in claim 33, wherein said providing comprises instantiating the audio rendition manager as a component object having one or more interfaces, wherein said requesting comprises an application program calling an interface method of the audio rendition manager, and wherein said determining comprises determining the requested reference with the audio rendition manager interface method.

38. A method as recited in claim 33, wherein said requesting comprises an application program calling an interface method of the audio rendition manager and providing one or more interface method search parameters, and wherein said determining comprises determining the requested reference with the audio rendition manager interface method in accordance with the one or more interface method search parameters.

39. A method as recited in claim 33, wherein said requesting comprises an application program calling an interface method of the audio rendition manager, and wherein said determining comprises determining the requested reference with an interface method search parameter that identifies the particular one of the audio data processing components.

40. A method as recited in claim 33, wherein said requesting comprises the application program calling an interface method of the audio rendition manager, and wherein said determining comprises determining the requested reference with an interface method search parameter that is a component identifier of one of the audio data processing components, the search parameter having a value that identifies said component as an audio buffer component.

41. A method as recited in claim 33, wherein said requesting comprises the application program calling an interface method of the audio rendition manager, and wherein said determining comprises determining the requested reference with an interface method search parameter that is a component identifier of one of the audio data processing components, the search parameter having a value that identifies said component as a synthesizer component.

42. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 33.

43. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 36.

44. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 38.

45. A computer programmed to perform a method, comprising:

instantiating a data manager as a programming object to manage processing data, the data manager having an interface that is callable by an application program;

the data manager performing acts comprising:

instantiating one or more data processing components as programming objects that process the data, each data processing component having an interface that is callable by the application program;

receiving a request for a programming reference corresponding to an interface of one of the instantiated data processing components, the request being received from the application program as a call to an interface method of the data manager interface;

determining the requested programming reference with the data manager interface method; and

returning the requested programming reference to the application program.

46. A method as recited in claim 45, wherein the data manager is an audio rendition manager that corresponds to an audio rendition, and wherein the data processing components process the data to render the corresponding audio rendition.

47. A method as recited in claim 45, wherein the data manager is a performance manager having the one or more data processing components that said process the data to generate audio instructions, and the method further comprising instantiating an audio rendition manager that corresponds to an audio rendition, the audio rendition manager processing the audio instructions to render the corresponding audio rendition.

48. A method as recited in claim 45, wherein said returning the requested programming reference comprises returning a memory address of a reference to the requested programming reference.

49. A method as recited in claim 45, wherein said determining comprises determining the requested programming reference with an interface method search parameter that identifies the particular one of the instantiated data processing components.

50. A method as recited in claim 45, wherein said determining comprises determining the requested programming reference with an interface method search parameter that is a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component as an audio buffer component.

51. A method as recited in claim 45, wherein said determining comprises determining the requested programming reference with an interface method search parameter that is a component identifier of one of the instantiated audio data processing components, the search parameter having a value that identifies said component as a synthesizer component.

52. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 45.

53. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 46.

54. One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 47.

55. An audio generation system, comprising:

an audio rendition manager configured to receive audio instructions from one or more sources;

one or more audio instruction processing components configured to process the audio instructions, the audio instruction processing components provided by the audio rendition manager;

an application program configured to request a reference corresponding to one of the audio instruction processing components by initiating that the audio rendition manager determine the requested reference and return the requested reference to the application program.

56. An audio generation system as recited in claim 55, wherein the application program is configured to request the reference by providing one or more search parameters, and wherein the audio rendition manager is configured to determine the requested reference in accordance with the one or more search parameters.

57. An audio generation system as recited in claim 55, wherein the audio rendition manager is configured to determine the requested reference with a search parameter that identifies the particular one of the audio instruction processing components.

58. An audio generation system as recited in claim 55, wherein the audio rendition manager is configured to determine the requested reference with a search parameter that is a component identifier of one of the audio instruction processing components, the search parameter having a value that identifies said component.

59. An audio generation system as recited in claim 55, wherein the audio rendition manager is configured to determine the requested reference with a search parameter that is a component identifier of one of the audio instruction processing components, the search parameter having a value that identifies said component as having one or more audio instruction modifying components.

60. An audio generation system as recited in claim 55, wherein the audio rendition manager is configured to determine the requested reference with a search parameter that is a component identifier of one of the audio instruction processing components, the search parameter having a value that identifies said component as an audio instruction mixing component.

61. An audio generation system as recited in claim 55, wherein the audio rendition manager is configured to determine the requested reference with search parameters, comprising:

a component identifier of one of the audio instruction processing components, the search parameter having a value that identifies said component as an audio buffer component that receives audio instructions from a plurality of audio buffer components; and

an audio buffer identifier that identifies the audio buffer component.

62. An audio generation system as recited in claim 55, wherein the audio rendition manager is configured to determine the requested reference with search parameters, comprising:

a component identifier of one of the audio instruction processing components, the search parameter having a value that identifies said component as an audio buffer component;

an audio buffer identifier that identifies the audio buffer component; and

an audio instructions channel identifier that identifies an audio instructions channel corresponding to the audio buffer component.

63. An audio generation system as recited in claim 55, wherein the audio rendition manager is configured to determine the requested reference with search parameters, comprising:

a component identifier of one of the audio instruction processing components, the search parameter having a value that identifies said component as an audio instructions modifying component;

an audio instructions channel identifier that identifies an audio instructions channel corresponding to the audio instructions modifying component;

a component class identifier that identifies a component class corresponding to the audio instructions modifying component; and

an index parameter that identifies the audio instructions modifying component in a group of audio instructions modifying components that each correspond to the audio instructions channel and to the audio instructions modifying component class.

64. An audio generation system as recited in claim 55, wherein the audio rendition manager is configured to determine the requested reference with search parameters, comprising:

a component identifier of one of the audio instruction processing components, the search parameter having a value that identifies said component as a synthesizer component;

an audio instructions channel identifier that identifies an audio instructions channel corresponding to the synthesizer component;

a component class identifier that identifies a component class corresponding to the synthesizer component; and

an index parameter that identifies the synthesizer component in a group of synthesizer components that each correspond to the audio instructions channel and to the synthesizer component class.

65. An audio generation system as recited in claim 55, wherein the audio rendition manager is configured to determine the requested reference with search parameters, comprising:

a component identifier of one of the audio instruction processing components, the search parameter having a value that identifies said component as an effects processor component in an audio buffer component that receives audio instructions from a plurality of audio buffer components;

an audio buffer identifier that identifies the audio buffer component corresponding to the effects processor component;

a component class identifier that identifies a component class corresponding to the effects processor component; and

an index parameter that identifies the effects processor component in a group of effects processor components that each correspond to the audio buffer component and to the effects processor component class.

66. An audio generation system as recited in claim 55, wherein the audio rendition manager is configured to determine the requested reference with search parameters, comprising:

a component identifier of one of the audio instruction processing components, the search parameter having a value that identifies said component as an effects processor component in an audio buffer component;

an audio buffer identifier that identifies the audio buffer component corresponding to the effects processor component;

an audio instructions channel identifier that identifies an audio instructions channel corresponding to the effects processor component;

a component class identifier that identifies a component class corresponding to the effects processor component; and

an index parameter that identifies the effects processor component in a group of effects processor components that each correspond to the audio buffer component, to the audio instructions channel, and to the effects processor component class.

67. An audio generation system as recited in claim 55, further comprising:

a performance manager configured to receive audio content from one or more sources and process event instructions to produce the audio instructions;

an audio content component configured to generate the event instructions from the received audio content, wherein the performance manager provides the audio content component;

wherein the application program is further configured to request a reference corresponding to the performance manager by initiating that the audio content component determine the requested reference with a search parameter having a value that identifies the performance manager, and return the requested reference to the application program.

68. An audio generation system as recited in claim 55, further comprising:

a performance manager configured to receive audio content from one or more sources and process event instructions to produce the audio instructions;

an audio content component configured to generate the event instructions from the received audio content, wherein the performance manager provides the audio content component;

wherein the application program is further configured to request a reference corresponding to the audio rendition manager by initiating that the audio content component determine the requested reference with a search parameter having a value that identifies the audio rendition manager, and return the requested reference to the application program.

69. An audio generation system as recited in claim 55, further comprising:

a performance manager configured to receive audio content from one or more sources and process event instructions to produce the audio instructions;

an audio content component configured to generate the event instructions from the received audio content, wherein the performance manager provides the audio content component;

wherein the application program is further configured to request a reference corresponding to the audio content component by initiating that the audio content component determine the requested reference with a search parameter having a value that identifies the audio content component, and return the requested reference to the application program.

70. An audio generation system as recited in claim 55, further comprising:

a performance manager configured to receive audio content from one or more sources and process event instructions to produce the audio instructions;

one or more audio content components configured to generate the event instructions from the received audio content, wherein the performance manager provides an audio content component for each source of audio content;

one or more event instruction modifiers configured to modify the event instructions, each event instruction modifier corresponding to an audio content component, wherein the performance manager provides the event instruction modifiers; and

wherein the application program is further configured to request a reference corresponding to an event instruction modifier by initiating that the corresponding audio content component determine the requested reference and return the requested reference to the application program.

71. An audio generation system as recited in claim 55, further comprising:

a performance manager configured to process event instructions to produce the audio instructions;

one or more audio content components configured to receive audio content from one or more sources, wherein the performance manager provides an audio content component for each source of audio content;

one or more event instruction components configured to generate the event instructions from the received audio content, each event instruction component corresponding to an audio content component, wherein the performance manager provides the event instruction components; and

wherein the application program is further configured to request a reference corresponding to an event instruction component by initiating that the corresponding audio content component determine the requested reference and return the requested reference to the application program.